Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Otolaryngology Case Reports 26 (2023) 100510

Contents lists available at ScienceDirect

Otolaryngology Case Reports

journal homepage: www.elsevier.com/locate/xocr

Late onset and persistent parosmia and dysgeusia as neurosensorial complication by the SARS virus COV 2

Patricia Sequeira Rodriguez [a], Rafael Santana Ortiz [b], Enrique Ortiz-Hernández [a,*]

[a] Servicio de Otorrinolaringología, Hospital Civil de Guadalajara "Fray Antonio Alcalde", Guadalajara, Jalisco, Mexico
[b] Servicio de Cirugia Pediatrica Hospital Civil Fray Antonio Alcalde, Mexico

A B S T R A C T

About the neurological manifestations of COVID-19, smell impairment with some distortion or parosmia is currently one of the longest-lasting post-covid sequelae affecting many young adults around the world, we present a case of a 25yo patient that after the COVID-19 infection initiates with anosmia and dysgeusia of difficult control and some weeks later begins with parosmia associated to general discomfort and vomiting preceded by nausea, accompanied by poor oral intake, generating weight loss in 3 weeks, and depression probably related to the clinical profile and the confinement due to the pandemic. She was treated with prednisone, gabapentin, nasal irrigations and olfactory rehabilitation, with mild improvement, which was greater after the second dose of covid-19 vaccine.

1. Introduction

The COVID-19 disease is the third major infectious outbreak caused by any strain of coronavirus. Smell impairment with some distortion or parosmia is currently one of the longest-lasting post-covid sequelae, affecting many young adults around the world. Some studies report that about 95% of patients who recovered from COVID-19 infection have at least one persistent symptom in alteration of smell for about 7.1 ± 3.1 days [1], and among them a large number with some type of distortion including disorders that detect unpleasant odors months after catching the virus [2]. In the Wuhan series, alterations in smell were observed in 5.1% of the 214 hospitalized patients and in taste in 5.6% [3]. In a subsequent study, acute alterations in smell were reported in up to 31.65% of patients with COVID-19, with an approximate duration of these alterations of 7.5 days ± 3.2 [4].

Disruptions in smell not only present acutely, other reports in which patients who presented and recovered from anosmia during their COVID-19 infection presented late parosmia, an average of 79 days after recovering smell [5].

Another study focused on prolonged COVID-19 symptoms surveyed 78 patients, finding 1.6% with dysgeusia, and 6.9% with dysosmia at 120 days after the start of the symptoms. There were two patients with late onset dysosmia: one at 30 and the other at 92 days after the onset of symptoms [6].

We present the case of a patient with delayed and prolonged onset of parosmia and dysgeusia associated with COVID-19, and our experience in treating it.

2. Presentation of the case

A 25-year-old female without a significant past medical history except for a non-complicated rhinoplasty at age 20 presents with fever of 102 °F and a persistent severe headache. Her family history was remarkable for type 2 diabetes mellitus in both parents. In her medical evaluation, where PCR was requested for SARS-CoV-2, for persisting more than 48 hours with fever, results positive (Ct gene E: 37 and Ct gene Rp: 29).

The patient is managed with azithromycin 500mg o.i.d for 5 days, vitamin C and D, 500 mg of Paracetamol t. i.d, and 100 mg of acetylsalicylic acid for 2 weeks. One week after diagnosis, anosmia and ageusia were added. Two weeks after her diagnosis, PCR was repeated, which results negative; at this time, the headache had already subsided, however, it persisted with anosmia and ageusia, for this reason it was decided to perform a cranial MRI which was normal and management was started with nasal irrigation with saline solution three times a day for 10 days, subsequently the patient reports improvement, recovering some flavors and smells. Three and a half months after her diagnosis, the patient begins with parosmia, dysgeusia and vomiting preceded by nausea, accompanied by poor oral intake losing weight in the past 3 weeks, she used to weigh 132.28 lb and now 123.68 lb and a BMI of 18.8 kg/m^2 generating a loss of 8.8 lb. of body weight and depression probably related to the clinical profile and the confinement due to the

* Corresponding author. Servicio de Otorrinolaringología, Hospital Civil de Guadalajara "Fray Antonio Alcalde", Coronel Calderon 777, Guadalajara, 44280, Jalisco, Mexico.
E-mail address: egortiz@hcg.gob.mx (E. Ortiz-Hernández).

https://doi.org/10.1016/j.xocr.2023.100510
Received 7 April 2022; Received in revised form 8 January 2023; Accepted 12 January 2023
Available online 19 January 2023

pandemic. For this clinical manifestations, prednisone was prescribed for 8 days at 0.5 mg/kg, nasal irrigation with saline solution plus Mupirocin for 10 days, Gabapentin 300 mg orally every 8 hours for 1 month, Escitalopram 5 mg daily and Multivitamins, observing improvement with respect to the depression but with minimal improvement with respect to the parosmia and dysgeusia, therefore, it was decided to carry out an olfactory test with the Sniffin' Sticks Test markers, from the Burghart laboratory in Germany, in which, of the 16 different odors, she only managed to identify with adequate distinction and discrimination 2 of them (12%). As the condition did not improve, a transfusion of 50 million mesenchymal stem cells of endometrial origin was performed, with no evidence of improvement even 8 weeks after it. 8 months after starting the condition, the first dose of the vaccine against SARS-CoV-2 (BioNTech from lab. Pfizer) was applied, showing an improvement of 25% of the parosmia and dysgeusia in the 7 days after the application of the first dose. Four weeks later the second dose of the vaccine was applied and 7 days later the olfactory test was performed again and an increase in perception and distinction of smells such as lemon, pepper, coffee, cloves, anise and fish were identified, reaching 40%.

3. Discussion

Acute olfactory alterations are common in COVID-19 the majority have a complete resolution between 0 and 30 days [7], in a survey made by Kosugi et al. found a mean of 12.5 days for a complete relief of smell [8] compared to our case, where 12 months after suffering the condition, parosmia and dysgeusia still persist; although anosmia and ageusia appeared from the onset of COVID-19, parosmia and dysgeusia appeared up to 112 days later, an onset even longer than the reported by Miyasato et al. where they refer two cases of dysosmia at 30 and 92 days respectively [6]. This chemosensory disorder of taste and smell that our patient presents, Vaira et al. describes it with an incidence of 12.5% and 14.4% respectively [9].

The olfactory nerve has an inherent ability to regenerate, if the progenitor cells in the olfactory epithelium remain intact [10], there is a chance for this to regenerate, there is evidence that repeated exposure to different odors promotes the neuroregenerative capacity. The olfactory training has showed efficacy in some patients with olfactory dysfunction, where the principal odors from different categories includes floral, fruity, aromatic, and resinous [11].

Summarizing, the studies that have been reported until this day, suggest that nearly 5.1%–48% of patients with COVID-19 present some alteration in smell, taste, or both [4]. In respect of the percentage that present parosmia as a sequel, it has been reported that it reaches up to 32.4% as a problem or late symptom [8].

Facing a scenario of a new disease and the lack of a well-established management protocol for these complications, there were multiple treatments implemented in our patient, among all of them the only one that showed a final benefit, was the application of the vaccine vs Covid-19, so it can be suggested as an extra change to the person who persists with some minor functional sequelae, but with affectation in the quality of life.

As it is a new disease, a greater number of studies are needed to determine the effectiveness and results after the application of the vaccine.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Mazzatenta Andrea, Neri Giampiero, D'Ardes Damiano, De Luca Carlo. Smell and taste in severe covid-19: self-reported vs testing. Front Med 2/December/2020. https://doi.org/10.3389/fmed.2.

[2] Ali Rashid Rashedd, Alaqeedy Ameer A, Al-Ani Raid M. Parosmia due to COVID-19 disease: a 268 case series. Indian J Otolaryngol Head Neck Surg 2021 May 23:1–8. https://doi.org/10.1007/s12070-021-02630-9.

[3] Mao L, Jin H, Wang M, Hu Y, et al. Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. JAMA Neurol 2020;77 (6):683–90. https://doi.org/10.1001/jamaneurol.2020.1127.

[4] Beltrán-Corbellini A, Chico-García JL, Martínez-Poles J, et al. Acute-onset smell and taste disorders in the context of COVID-19: a pilot multicentre polymerase chain reaction based case-control study. Eur J Neurol 2020;27:1738–41. https://doi.org/10.1111/ene.14273.

[5] Duyan M, Ozturan IU, Altas M. Delayed parosmia following SARS-CoV-2 infection: a rare late complication of COVID-19. SN Comprehensive Clinical Medicine 2021; 3:1200–2. https://doi.org/10.1007/s42399-021-00876-6/Published.

[6] Miyazato Y, Morioka S, Tsuzuki S, et al. Prolonged and late-onset symptoms of coronavirus disease 2019. Open Forum Infect Dis 2020;7(11):1–3. https://doi.org/10.1093/ofid/ofaa507.

[7] Bagheri SHR, Asghari AM, et al. Coincidence of COVID-19 epidemic and olfactory dysfunction outbreak. medRxiv 2020. https://doi.org/10.1101/2020.03.2320041889.

[8] Kosugi EM, Lavinsky J, et al. Incomplete and late recovery of sudden ofactory dysfunction in COVID-19. Braz J Otorhinolaryngol 2020;S1808–8694(20). https://doi.org/10.1016/j.bjorl.2020.05.001. 30059-8.

[9] Vaira LA, Dejana G, et al. Objective evaluation of anosmia y ageusia in COVID-19 patients: single-center experience on 72 cases. Head Neck 2020;42:1252–8. http://doi:10.1002/hed.26204.

[10] Scotto Gaetano, Fazio Vincenzina, Lo Muzio Eleonora. SARS-CoV2 infection and taste alteration: an overview. Life 2022 May;12(%):690. https://doi.org/10.3390/life12050690.

[11] Pekala K, Chandra RK, Turner JH. Efficacy of olfactory training in patients with olfactory loss: a systematic review and meta-analysis. Int Forum Allergy Rhinol 2016;6:299–307. https://doi.org/10.1002/alr.21669.